TO: USPTO

Application No. 09/676,402
Reply to Office Action of December 24, 2003

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## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims:**

1. (Currently amended) A signal testing system for evaluating [a] an optimum location for a fixed subscriber communication site wherein wireless communication signals are transmitted between a base station and said fixed subscriber communication site, said signal testing system comprising:

an antenna positionable at <u>a tentative</u> location of the fixed subscriber communication site for communicating said wireless communication signals;

an adjustable mount associated with said antenna for [orientating] enabling orientation of said antenna in a plurality of pan orientations and a plurality of tilt orientations at said tentative location;

an adjustable boom associated with said adjustable mount for positioning said antenna at a plurality of heights at said tentative location; and

a communication unit to measure characteristics of said wireless communication signals,

wherein for said tentative location said adjustable mount is fixed in a set pan orientation of said plurality of pan orientations and a set tilt orientation of said plurality of tilt orientations and said adjustable boom is fixed at one of said plurality of heights when said communication unit measures said characteristics of said wireless communication signals.



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- 2. (Previously presented) [A] The wireless testing system as claimed in claim 1, wherein said testing system receives wireless communication signals sent downstream from said base station to said testing system, said antenna receives said wireless communication signals and said communication unit receives said wireless communication signals from said antenna and measures characteristics of said wireless communication signals.
- 3. (Currently amended) [A] The wireless testing system as claimed in claim 1, wherein said testing system transmits wireless communication signals [sent] upstream to said base station from said testing system, said antenna receives wireless communication signals from said base station, said communication unit [generates] receives said wireless communication signals [-] from said antenna [transmits said wireless communication signals to said base station] and said communication unit measures characteristics of said wireless communication signals.
- 4. (Currently amended) The wireless testing system as in claim 1, wherein said communication unit comprises
- a signal measurement device to measure characteristics of said wireless communication signals communicated with said base station; [and]
- a [modem] network interface unit to process said wireless communication signals communicated with said base station; and
- a switching device connecting said network interface unit alternatively to said antenna and said signal measurement device.

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- 5. (Currently amended) [A] The wireless testing system as claimed in claim 4, wherein said signal measurement device is a signal analyzer for measuring the power of said wireless communication signal over the transmission band [integrating power signals around frequencies] associated with said wireless communication signals.
- 6. (Currently amended) [A] <u>The</u> wireless testing system as claimed in claim 5, wherein said [modern is a] network interface unit is a modern.
- 7. (Currently amended) The wireless testing system as claimed in claim 6, wherein said switching means [communication unit further comprises] is a directional coupler connected to said antenna to direct said wireless communication signals and wherein said signal measurement device is connected to said coupler and said modern is connected to said coupler.
- 8. (Currently Amended) [A] The wireless testing system as claimed in claim 7, wherein said testing system transmits said wireless communication signals sent upstream to said base station, said modern generates said wireless communication signals, said wireless communication signals are provided to said antenna, said antenna transmits said wireless communication signals and said signal analyzer measures characteristics of said wireless communication signals.
- 9. (Currently Amended) [A] <u>The</u> wireless testing system as claimed in claim 7, wherein said testing system receives wireless communication signals sent downstream from said

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base station to said testing system, said antenna receives said wireless communication signals, said wireless communication signals are provided to said modem and said signal analyzer unit measures characteristics of said wireless communication signals.

- 10. (Currently Amended) [A] The wireless testing system as claimed in claim 1, further comprising a controller to orient said mount in one of said plurality of pan orientations and one of said plurality of tilt orientations.
- 11. (Currently Amended) [A] The wireless testing system as claimed in claim 1, further comprising a bracket attached to said antenna, said bracket allowing the positioning of said antenna at a plurality of angles along a plane to change a polarity of said wireless communication signals sent between said base station and said wireless testing system, said plane determined by said pan position and said set tilt position of said mount.
- 12. (Currently Amended) [A] The wireless testing system as claimed in claim 7 further comprising an attenuator in said communication unit to selectively attenuate said wireless communication signals to produce attenuated signals simulating attenuating effects of ambient atmospheric and meteorological conditions around said communication site.
- 13. (Currently Amended) [A] <u>The</u> wireless testing system as claimed in claim 12 wherein said attenuator provides said attenuated signal to said coupler.

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14. (Currently Amended) A method of [evaluating a] cstablishing an optimal location for a fixed subscriber communication site wherein wireless communication signals are communicated between a wireless testing system provided at a tentative location and a base station, said wireless testing system comprising an antenna for communicating said wireless communication signals with said base station, an adjustable mount associated with said antenna for orienting said antenna in a plurality of pan orientations and a plurality of tilt orientations, an adjustable boom attached to said adjustable mount for positioning said antenna at a plurality of heights and a communication unit associated with said antenna, said method of evaluating wireless communication signals comprising:

at said tentative location, positioning said antenna at a set height of said plurality of heights, at a set pan of said plurality of pan orientations and at a set tilt of said plurality of tilt orientations; and evaluating said characteristics of said wireless communication signals by integrating the power [signals] of said wireless communication signals across a frequency band associated with said wireless communication signals.

15. (Currently amended) [A] The method [of evaluating wireless communication signals] as claimed in claim 14, further comprising variably-attenuating said wireless communication signals before evaluating said characteristics of said wireless communication signals to simulate ambient atmospheric and meteorological conditions around said wireless testing system.

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- 16. (Currently amended) [A] The method [of evaluating wireless communication signals] as claimed in claim 14, further comprising evaluating said characteristics of said wireless communication signals transmitted by said wireless testing system to said base station.
- 17. (Currently amended) [A] <u>The</u> method [of evaluating wireless communication signals] as claimed in claim 14, further comprising evaluating said characteristics of said wireless communication signals received by said wireless testing system from said base station.
- 18. (Previously presented) A method of evaluating a location for a fixed subscriber communication site of a wireless communication system using a wireless testing system, said wireless testing system comprising an antenna positionable at said location for said fixed subscriber communication site for communicating said wireless communication signals with said base station, an adjustable mount associated with said antenna for orienting said antenna in a plurality of pan orientations and a plurality of tilt orientations, an adjustable boom attached to said adjustable mount for positioning said antenna at a plurality of heights, a signal measuring device associated with said antenna and a signal attenuator associated with said antenna, said method comprising:

at said location, positioning said antenna at a set height of said plurality of heights, at a set pan orientation of said plurality of pan orientations and at a set tilt orientation of said plurality of tilt orientations; evaluating characteristics of said wireless communication signals transmitted by said base station and received by said signal measuring device;

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attenuating said wireless communication signals until said signal measuring device no longer receives said wireless communication signals transmitted by said base station;

calculating ambient atmospheric and meteorological conditions corresponding to said amount of attenuation based on the distance between said antenna and said base station;

comparing said calculations of said ambient atmospheric and meteorological conditions to a predetermined threshold level required to maintain a level of service required for communications with said base station when said ambient atmospheric and meteorological conditions exist;

wherein, if said level of attenuation exceeds said threshold level, said antenna placement at location for said fixed subscriber communication site is acceptable.

- 19. (New) The wireless testing system as claimed in claim 2, wherein said wireless communication signals are downstream wireless signals obtained by modulating test signals generated by said communication unit over an intermediary frequency.
- 20. (New) The wireless testing system as claimed in claim 19 wherein the bandwidth of said wireless communication signals is 36 MHz centered about a 1.0 GHz frequency.
- 21. (New) The wireless testing system as claimed in claim 3, wherein said wireless communication signals are downstream wireless signals generated by said base station in response to upstream wireless signals received from said testing system.

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- 22. (New) The wireless testing system as claimed in claim 4, wherein said network interface unit operates according to a plurality of communication protocols.
- 23. (New) The wireless testing system as claimed in claim 12, wherein said attenuator decreases incrementally the power of said wireless communication signals for determining the amount of attenuation said wireless communication signals can withstand at said tentative location.
- 24. (New) The method as claimed in claim 14, further comprising:

  performing said step of evaluating for a plurality of tentative locations to obtain a plurality of measured characteristics for said wireless communication signals associated with a respective tentative location;

  comparing said measured characteristics for said plurality of tentative locations; and selecting as said optimal location a tentative location that has an optimal measured characteristic.
- 25. (New) The method as claimed in claim 24, wherein said characteristic is the power of said wireless communication signals integrated over the frequency band associated with said wireless communication signals.

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- 26. (New) A method of establishing an optimal location for a fixed subscriber communication site, comprising, at each of a plurality of tentative locations:
  - a) placing a wireless testing system comprised of an antenna and a communication unit;
  - b) adjusting tilt, pan, and height of said antenna to exchange wireless communication signals between each of said plurality of tentative locations and said base station;
  - c) for each tentative location, measuring a characteristic of said wireless communication signals with said communication unit; and
  - d) selecting one of said plurality of tentative locations as said optimal location if said characteristic thereof is better than the characteristics measured in all other tentative locations.
- 27. (New) The method as claimed in claim 26, wherein said characteristic is the power of said wireless communication signals integrated over the frequency band associated with said wireless communication signals.
- 28. (New) The method as claimed in claim 26, further comprising establishing an optimal spot for said antenna at each of said plurality of tentative locations.
- 29. (New) The method as claimed in claim 28, wherein said step of establishing an optimal spot comprises:

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determining a distance d between each of said plurality of tentative locations and said base station;

determining an offset I between a location of transmit and receive antennae at said base station; and

adjusting positioning of said antenna based on receive and transmit signal strengths measured by said communication unit, whenever an angle  $\alpha$  provided by tan  $\alpha = 1/d$  is greater than  $1.5^{\circ}$ .